

We Claim:

1. A filter element, comprising:
 - a filter media having filter face portions and at least one side portion joined thereto by a corner portion; and
 - a seal of substantially solid thermoplastic material disposed at the corner portion and having a bendable contact portion extending from an adjacent face portion, the seal having been formed on the corner portion by injection molding.
2. A filter element according to claim 1 wherein the thermoplastic material is a thermoplastic elastomer (TPE).
3. The filter element of claim 2 further including at least one substantially rigid particulate filler material.
4. A filter element according to claim 1 wherein the thermoplastic comprises ethylene-propylene terpolymer embedded in thermoplastic particles.
5. A filter element according to claim 4 wherein the filter media is a pleated filter media comprised of cellulose, cellulose blends, polyester fibers or polypropylene fibers.
6. A filter element comprising:
 - a filter media having filter face portions and at least one side portion joined thereto by a corner portion, and

a seal of thermoplastic material having a base portion integral with the filter media, wherein the thermoplastic material is substantially solid,

and wherein the seal has a contact portion for engaging and sealing against a filter housing or a lid of a filter housing, the contact portion having an anchor portion unitary with the base portion of the seal and a free portion engaging the housing or the lid whereby a bending moment is introduced into the contact portion upon closing the lid.

7. The filter element of claim 6 wherein the thermoplastic material is a thermoplastic elastomer (TPE).

8. The filter element of claim 6 wherein the contact portion of the seal comprises at least one flange having an anchor portion at one end unitary with the base and a free portion comprising a free end engaging the housing or the lid.

9. The filter element of claim 8 wherein there is more than one flange comprising the contact portion.

10. The filter element of claim 9 wherein there are two flanges extending obliquely in divergent directions with respect to the filter face, the two flanges having a gap therebetween which widens as the free ends of the flanges bend away from one another when the lid is closed.

11. The filter element of claim 10 wherein the thermoplastic material is a thermoplastic elastomer (TPE).
12. The filter element of claim 6 wherein the contact portion of the seal is a body enclosing a void.
13. The filter element of claim 12 wherein the body of the contact portion is U-shaped, circular, oval, polygonal or hollow.
14. The filter element of claim 11 wherein the filter media is a pleated filter media.
15. A method according to claim 13 wherein the pleated filter media is made of cellulose, cellulose blends, polyester fibers or polypropylene fibers.
16. The filter element of claim 11 wherein the filter media is a panel air filter media which is polygonal.
17. The filter element of claim 16 wherein the filter media is rectangular.
18. The filter element of claim 15 wherein the filter media has at least one corner formed by an oblique portion of the filter media.

19. A method of making filter elements, comprising:

inserting a filter media having a dirty-side face and a clean-side face into an injection molding machine;

injecting a seal around a face of the filter media while the filter media is in the injection molding machine to form a filter element;

ejecting the filter element from the injection molding machine after the seal is formed, and

sequentially inserting subsequent filter media into the injection molding machine after previously formed filter elements are removed therefrom to provide continuous sequential production of the filter elements.

20. A method according to claim 19 wherein the filter media is made of cellulose, cellulose blends, polyester fibers, polypropylene fibers or foamed materials.

21. A method according to claim 20 wherein the filter media is configured as a pack with a clean-side face and a dirty-side face and at least one corner; and

wherein the seal is injected on the filter media at a corner formed by the juncture of the clean-side face or the dirty-side face with sides and ends of the filter media.

22. A method according to claim 20 wherein the filter media is configured as a rectangular pack with a clean-side face and a dirty-side face; and

wherein the seal is injected on the filter media at a corner of the juncture of the clean-side face or dirty-side face with sides and ends of the filter media.

23. A method of making a filter element, comprising:

 inserting a filter media having a dirty-side face and a clean-side face into an injection molding machine;

 injection molten material for a hard frame member around the face of the filter media;

 injecting a seal on the hard frame member while the filter media is in the injection molding machine to form a filter element;

 ejecting the filter element from the injection molding machine after the seal is formed, and

 sequentially inserting subsequent filter media into the injection molding machine after previously formed filter elements are removed therefrom to provide continuous sequential production of the filter elements.

24. A method according to claim 23 wherein the filter media is made of cellulose, cellulose blends, polyester fibers, polypropylene fibers or foamed materials.

25. A method according to claim 24 wherein the filter media is configured as a pack with a clean-side face and a dirty-side face and at least one corner; and wherein the seal is injected on the frame at an edge of the filter media formed by the juncture of the clean-side face or the dirty-side face with sides and ends of the filter media.